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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,680	01/11/2005	Zenichirou Shida	OGW-0344	9386

23353 7590 01/09/2007 RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036	**EXAMINER** MAKI, STEVEN D

ART UNIT	PAPER NUMBER
1733	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

Office Action Summary	**Application No.**	**Applicant(s)**
	10/520,680	SHIDA, ZENICHIROU
	Examiner	**Art Unit**
	Steven D. Maki	1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>011105</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

1)   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2)   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3)   **Claims 1, 5-6, 8 and 10-11 are rejected under 35 U.S.C. 102(b) as being**

anticipated by Carolla et al (US 4,722,378).

Carolla et al discloses a pneumatic tire with a tread comprising land portions and

straight circumferential grooves wherein the surface of each land portion is convex so

that water will not be trapped between the edges of the land portion. Carolla et al

discloses a tire having a tread as shown in figure 10 in which the height h of the land

portion is 6.4 mm and the amplitude of the outer two land portions is 0.813 mm and

0.805 mm. In this equation, the convex path follows the equation $y = Ax^2 + Bx + C$.

Carolla et al teaches that the maximum amplitude of the convex surface will be about

0.1 of the height h of the land portion. See col. 7 lines 45-48.

The claimed tire is anticipated by Carolla et al's tire. With respect to depth d

being 2-10% depth D, Carolla et al teaches that the maximum amplitude of the convex

surface will be about 10% of the height h of the land portion. With respect to first

circular arc and second circular arc (claim 1) or first circular arc and curved line (claim

8), note Carolla et al's teaching to use a curved convex surface which may follow the equation $y = Ax^2 + Bx + C$.

4)   **Claims 1, 3-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carolla et al in view of Kogure et al (US 5355922).**

Carolla et al is considered to anticipate claims 1 and 8. In any event: It would have been obvious to one of ordinary skill in the art to provide Carolla et al's tire such that the depth d is in the range of 2-10% groove depth D since (1) Carolla et al describes the amplitude of the outer two land portions of a tire tread as being for example 0.813 mm and 0.805 mm and (2) Kogure et al teaches that the depth D of tread grooves of a conventional passenger radial tire is 8-11 mm. The ratio of 0.813 mm / 11 mm equals 0.074, which falls within the claimed range of 0.02-0.1.

As to claims 3, 4, 7 and 12, it would have been obvious to one of ordinary skill in the art to provide the convex surface such that the land portion has only two radii R1, R2 wherein R1/R2 = 2 to 10 or only three radii R1, R2, R3 wherein R1/R2 = 2-10 and R2/R3 = 2-10 in view of Carolla et al's teaching to shape the convex surface so as to avoid trapping water. At col. 6 lines 59-61, Carolla et al states "It is not necessary that the convex line defined by the locus of the points be an arc of a circle ...". This disclosure in Carolla et al demonstrates that Carolla et al contemplated and teaches using at least one radius to form the convex curve - the arc of a circle being defined by one radius. In other words, Carolla et al is considered to suggest defining the convex curve with one radius, two radii, three radii, etc. or with the equation at col. 7.

As to claims 5-6 and 10-11, Carolla et al teaches a convex surface and thereby teaches both sides of the land portion being curved.

5) **Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carolla et al in view of Aoki et al (US 5720831) and Tozawa et al (US 2001/0054464).**

Carolla et al is considered to anticipate claims 1 and 8. In any event: It would have been obvious to one of ordinary skill in the art to provide a heavy duty tire having straight circumferential grooves and land portions such that the surface of the second land from the outer side has a convex surface and the depth d is in the range of 2-10% groove depth D since (1) Carolla et al suggests providing a land portion with a convex surface to avoid trapping of water, (2) Carolla describes the amplitude of the outer two land portions of a tire tread as being for example 0.813 mm and 0.805 mm and (2) Aoki et al and Tozawa et al teach providing the circumferential grooves such as straight circumferential grooves of a heavy duty tire with a depth D of more than 12 mm. Aoki et al teaches an example width Wo of 14 mm and depth D0 of 15.2 mm for a circumferential groove of a heavy duty tire having a size of 285/75R24.5. Tozawa et al teaches providing a straight circumferential groove of a "heavy duty tire" having a size such as 295/75R22.5 with a depth D equal to G + H where G $\geq$ 12 mm and H = 0-2 mm. When a depth of 15 mm is used, the ratio d/D can be 0.813 mm / 15 mm = 0.054, which falls within the claimed range of 0.02-0.1.

As to claims 2 and 9, the claimed ratio d/W = 0.01-0.15 would have been obvious in view of Carolla et al's teachings regarding amplitude of the convex surface and Aoki

et al's teaching of a groove width of 14 mm for a circumferential groove of a heavy duty

tire. When a width W of 14 mm is used, the ratio d/W can be 0.813 mm / 14 mm =

0.058, which falls within the claimed range of 0.01-0.15.

As to claims 3, 4, 7 and 12, it would have been obvious to one of ordinary skill in

the art to provide the convex surface such that the land portion has only two radii R1,

R2 wherein R1/R2 = 2 to 10 or only three radii R1, R2, R3 wherein R1/R2 = 2-10 and

R2/R3 = 2-10 in view of Carolla et al's teaching to shape the convex surface so as to

avoid trapping water. At col. 6 lines 59-61, Carolla et al states "It is not necessary that

the convex line defined by the locus of the points be an arc of a circle ...". This

disclosure in Carolla et al demonstrates that Carolla et al contemplated and teaches

using at least one radius to form the convex curve - the arc of a circle being defined by

one radius. In other words, Carolla et al is considered to suggest defining the convex

curve with one radius, two radii, three radii, etc. or with the equation at col. 7.

As to claims 5-6 and 10-11, Carolla et al teaches a convex surface and thereby

teaches both sides of the land portion being curved.
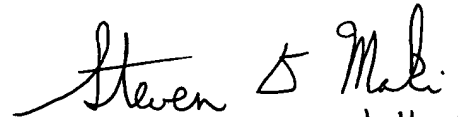
<div align="center">Remarks</div>

6)   The remaining references are of interest.

7)   No claim is allowed.

8)   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Steven D. Maki whose telephone number is (571) 272-

1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki   STEVEN D. MAKI   1-4-07
January 2, 2007   PRIMARY EXAMINER